

Hamed Soroush

Room 226 • 140 governors Drive • 01002, Amherst, MA, USA
+1.916.365.1182 • hamed[at]cs[dot]umass[dot]edu
<http://www.cs.umass.edu/~hamed>

Research Interests

- Mobile Wireless Networks
- Distributed Systems
- Sensor Networks
- Embedded Systems

Education

- 2007 – present **University of Massachusetts, Amherst** **USA**
· Ph.D. Computer Science
- 2005 – 2007 **Carnegie Mellon University**
 Athens Information Technology Center **USA/Greece**
· M.S. Information Networking
- 2000 – 2005 **Sharif University of Technology** **Iran**
· B.S. Computer Engineering and Software Design

Research Experience

- DOME: Large-scale & Diverse Mobile Wireless Testbed** **Sep. 2007 – present**
· Analysis and evaluation of real-world mobile networks through DOME, a large-scale mobile testbed with temporal, technological, and spatial diversity
Advisors: M. Corner, and B. Levine, PRISMS Lab, UMASS
- Augmenting Mobile WiFi Networks** **Sep. 2008 – present**
· Design, implementation, and evaluation of methods to patch holes in mobile networks
Advisors: M. Corner, and B. Levine, PRISMS Lab, UMASS
- PhotoBus: A Mobile Camera Network** **Jun. 2009 – present**
· Design and implementation of a mobile camera network.
Advisors: M. Corner, B. Levine, and R. Wang, PRISMS and GFX Labs, UMASS
- Securing Hierarchical Sensor Networks** **Jun. 2006 – Jun. 2007**
· Design & implementation of a security scheme in a multi-level hierarchical wireless sensor network that allows secure & authenticated aggregation processing in all the levels & accounts for dynamic cluster re-organization
Advisor: Tassos Dimitriou, Algorithms & Security Lab, AIT
- Multiple and/or Directional Antennas for Sensor Network Nodes** **Aug. 2006 – Mar. 2007**
· Study the effects of using multiple and/or directional antennas on energy efficiency of transmission and reception as well as to find out new techniques for packet scheduling in MAC layer
Advisor: Antonis Kalis, Wireless & Sensor Networks Lab, AIT
- Real World Sensor Network Application for Protection of Turtles** **Jun. 2006 – Jun. 2007**
· Design, implementation and deployment of a sensor network in order to protect endangered Caretta-Caretta turtles in Greek island of Zakynthos with support of WWF Hellas Organization
Advisor: Tassos Dimitriou, Algorithms & Security Lab, AIT
- LEE: Lightweight Energy Efficient Encryption Algorithm** **Sep. 2006 – Mar. 2007**
· Design, analysis and implementation of an efficient block cipher suitable to be used in low-power tiny devices such as the sensor network nodes
Advisor: Nikos Komninos, Algorithms & Security Lab, AIT
- Transparent Security Platform for Wireless Sensor Networks** **Jan. 2006 – Sep. 2006**
· Analysis, design & implementation of an energy-efficient, easy-to-use, scalable and flexible security platform under TinyOS that protects the WSN against replay and node capture attacks along with providing basic security services

Jun. 2002 - Sep. 2002 Danesh Pajouhan Co. Tehran, IR
Systems Analyst
Responsible for analysis phase of a system utility software to be used by computer engineering students as an aid to their course studies

Sep. 2001 - Jun. 2002 Sharif Computing Center Tehran, IR
Developer
Web designer and developer in Sharif Virtual University project
Analysis & design of a secure system for Hadi Systems Co. in order to protect its audio/visual products from being captured or cracked

P u b l i c a t i o n s

- H. Soroush, N. Banerjee, A. Balasubramanian, M. D. Corner, B. N. Levine, B. Lynn, "**Dome: A Diverse Outdoor Mobile Testbed**", in the 1st ACM International Workshop on Hot Topics of Planet-scale Mobility Measurements (ACM HotPlanet '09), held in conjunction with ACM MobiSys, Krakow, Poland, June 2009.
- H. Soroush, N. Banerjee, M. D. Corner, B. N. Levine, "**Epsilon: Patching WiFi Mobile Networks**", UMass UM-CS-2009-039 Technical Report, August 2009.
- H. Soroush, N. Banerjee, A. Balasubramanian, M. D. Corner, B. N. Levine, B. Lynn "**Dome: A Diverse Outdoor Mobile Testbed**", UMass UM-CS-2009-023 Technical Report, March 2009.
- Ioannis Krontiris, Tassos Dimitriou, Hamed Soroush, Mastrooreh Salajegheh, "**WSN Link-layer Security Frameworks**", book chapter of "**Wireless Sensor Network Security**", Edited by Jianying Zhou and Javier Lopez, ISBN 978-1-58603-813-7, 2008.
- M. Salajegheh, H. Soroush, A. Kalis, "**HyMAC: Hybrid TDMA/FDMA Medium Access Control Protocol for Wireless Sensor Networks**", in the 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'07), Athens, Greece, September 2007.
- N. Komninos, H. Soroush, M. Salajegheh, "**LEE: Lightweight Energy-efficient Encryption Algorithm**", in the Ninth International Symposium on Communication Theory and Applications (ISCTA'07), Ambleside, Lake District, UK, July 2007.
- H. Soroush, M. Salajegheh, T. Dimitriou, "**Providing Transparent Security Services to Sensor Networks**", To Appear in IEEE International Conference on Communications (ICC'07), Glasgow, Scotland, June 2007.
- M. Salajegheh, H. Soroush, A. Thomos, T. Dimitriou, I. Krontiris, "**.Sense: A Secure Framework for Sensor Network Data Acquisition, Monitoring and Command**", The ACM Workshop on Real-World Wireless Sensor Networks (REALWSN'06), Poster Section, June 2006.
- H. Soroush, M. Salajegheh, T. Dimitriou, "**Securing Hierarchical Sensor Networks**", Master of Information Networking Thesis, Information Networking Institute, Carnegie Mellon University / Athens Information Technology, November 2006.
- H. Soroush, S. B. Shouraki, "**A Critical Analysis of Classical Reasoning Systems & Defining New Fuzzy Operators Based on Diffusion Phenomena in Nature**", Bachelor of Science Thesis, Department of Computer Engineering, Sharif University of Technology, January 2005.

A w a r d s / H o n o r s

- Ranked in top five master students in MSIN program, Athens Information Technology (AIT), Athens, Greece, 2007.
- Awarded with full tuition scholarship from Athens Information Technology (AIT), Athens, Greece, 2005.
- Ranked 5th with Sharif Aras Team in the first international Robocup German Open Soccer Simulation League in Paderborn, Germany, 2001.

- Awarded with financial award from Sharif University of Technology for the high rank in Nationwide Examination for Undergraduate Admissions in the Public Universities, Iran, September, 2000.
- Ranked among 0.04% of more than 350,000 students participating in the Math Section of the Nationwide Examination for Undergraduate Admissions to the Public Universities, Iran, May 2000.
- Student Travel Grants: NSDI '09.

T e c h n i c a l S k i l l s

Embedded Systems Programming

- Practical experience with TinyOS & nesC
- Familiarity with Mica2, tmoteSky & CMU FireFly motes hardware
- Familiarity with MSP-based and AVR microcontrollers
- Working background with ARM Processor (mainly XScale)
- Experience with CC2420, WiFi, and 900MHz Digi-Xtend Radio

Programming Languages & Tools

- Experience with C, C++, Java, nesC, Unix Shell, SQL
- Familiarity with OPNET
- Familiarity with LATEX

Web Development

- Experience with PHP, Servlets, JSP, Applets, Java Script, HTML & XML Technologies
- Experience with .Net Platform, ASP
- Familiarity with Macromedia Flash MX and Adobe PhotoShop

A c t i v i t i e s / M e m b e r s h i p s

- Member of IEEE Computer & Communications Societies
- Member of ACM
- Graduate Student Senator, Representing Computer Science Department in UMASS Graduate Student Senate, Fall 2009
- Responsible for Computer Science Departmental Movie Nights since Fall 2008

R e f e r e n c e s

Available upon request